

Secondary syphilis as an initial presentation of HIV

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ABSTRACT

Syphilis, a sexually transmitted infection caused by the spirochete *Treponema pallidum*, generally presents in distinct stages that sequentially progress in a predictable pattern. However, in the case of syphilis and HIV coinfection, the progression of the disease may be atypical, and syphilis may be the initial presentation of an underlying HIV infection in an undiagnosed patient. These patients can initially present with symptoms of secondary syphilis and can have a rapid and aggressive initial course. Here we describe a case of syphilis in a patient who presented in the secondary stage with a diffuse maculopapular rash, who was later found to have an underlying HIV coinfection.

KEYWORDS HIV; HIV coinfection; secondary syphilis; syphilis

Syphilis is a sexually transmitted infection caused by the spirochete *Treponema pallidum* through direct vaginal, anal, or oral contact with infectious mucocutaneous lesions. The incidence of syphilis is 13.5 per 100,000 people per year in the US, with an 8:1 predilection for men vs women.¹ Men who have sex with men (MSM) account for most of the cases of primary and secondary syphilis.² Syphilis generally presents as four distinct clinical stages: primary, secondary, latent, and tertiary.³ The second stage of syphilis presents as a disseminated non-pruritic, polymorphic maculopapular rash that involves the trunk, extremities, palms, and soles. Although the progression of syphilis generally occurs in a predictable manner in immunocompetent patients, in the case of syphilis patients coinfecting with human immunodeficiency virus (HIV), the disease may present atypically and more rapidly.

CASE PRESENTATION

A 20-year-old black man presented to the emergency room with a diffuse rash consisting of raised, flesh-colored papules; ulcerated lesions; and flat hyperpigmented lesions (*Figure 1a*). The lesions appeared to be at similar stages of development. The patient was afebrile and nontoxic appearing at the time of evaluation. Of note, he had a history of eczema and presented to the emergency department with a

similar, albeit localized, rash on the forearm 2 months earlier and was treated symptomatically and discharged. The patient identified as MSM and denied any current sexual partners or history of sexually transmitted infections. He had a prior history of unprotected sex with multiple partners but had not noted the presence of genital lesions.

Initial laboratory results were unremarkable. Rapid plasma reagin for syphilis and serology for HIV, hepatitis B, and hepatitis C were ordered. Dermatology and Infectious Diseases were consulted. A bedside punch biopsy of the lesions was performed. The patient was treated empirically with a one-time dose of benzathine penicillin G and a 7-day course of valacyclovir due to suspicion of possible syphilis or varicella infection.

Testing for HIV returned positive with a CD4 count of 560 with lymphocytic predominance, HIV viral load of 18,904, and negative HIV p24 antigen. The syphilis test was positive with an elevated titer of 1:1024. The skin biopsy was notable for the presence of neutrophils in the stratum corneum with epidermal hyperplasia and lymphohistiocytic inflammation and was positive for numerous treponemal spirochetes (*Figure 1b, 1c*). A diagnosis of secondary syphilis with HIV coinfection was made. Follow-up syphilis titers were monitored and declined gradually.

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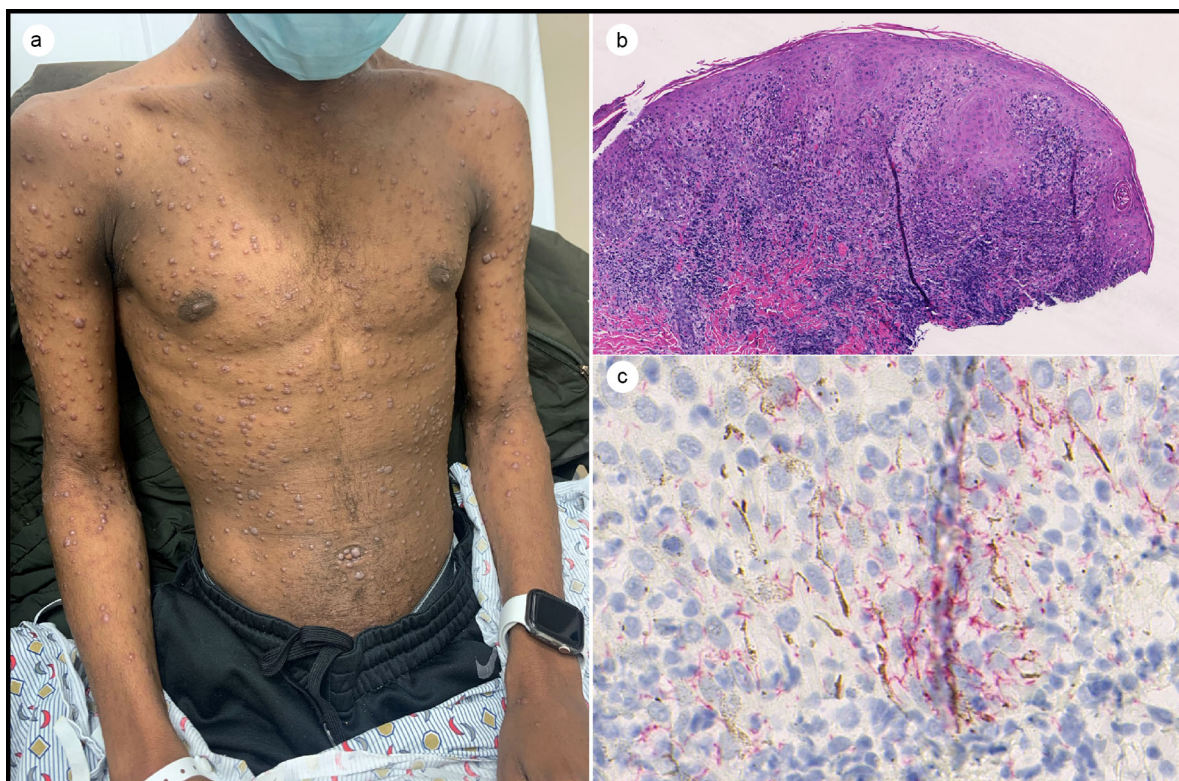


Figure 1. (a) Diffuse, raised maculopapular rash consistent with secondary syphilis. (b) Skin biopsy with hematoxylin and eosin stain showing neutrophils in the stratum corneum with epidermal hyperplasia and lymphohistiocytic inflammation. (c) Skin biopsy with immunohistochemical stain showing numerous treponemal spirochetes.

DISCUSSION

HIV-infected patients are more likely to present initially with secondary syphilis as well as rapid progression to neurosyphilis.⁴ In such cases, widely disseminated malignant lues may be a presenting feature in newly diagnosed patients with syphilis and HIV coinfection due to immunosuppression (Figure 1a). Diagnosis of secondary syphilis can be made using a combination of serology and clinical findings. It can be confirmed with histopathology via skin biopsy. The atypical and varied presentation of syphilis in an undiagnosed HIV patient makes it challenging to differentiate syphilis from other possible causes of maculopapular rash, as well as other common pathogens affecting HIV-infected patients, such as disseminated cryptococcal infection and histoplasmosis. Thus, a skin biopsy, in addition to the patient's CD4 count, is a very beneficial tool in differentiating possible etiologies.

In patients with HIV coinfection, the initial presentation of syphilis can be in the secondary stage and may rapidly progress to neurosyphilis. Thus, early treatment is imperative. A single dose of intramuscular benzathine penicillin G is sufficient to treat the primary and secondary stages of syphilis.⁵ The treatment of neurosyphilis generally requires 10 to 14 days of intravenous penicillin and requires a

lumbar puncture to be performed as well. In the case presented, the patient's condition was diagnosed early, which allowed him to receive the appropriate treatment for both his syphilis and HIV infections.

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